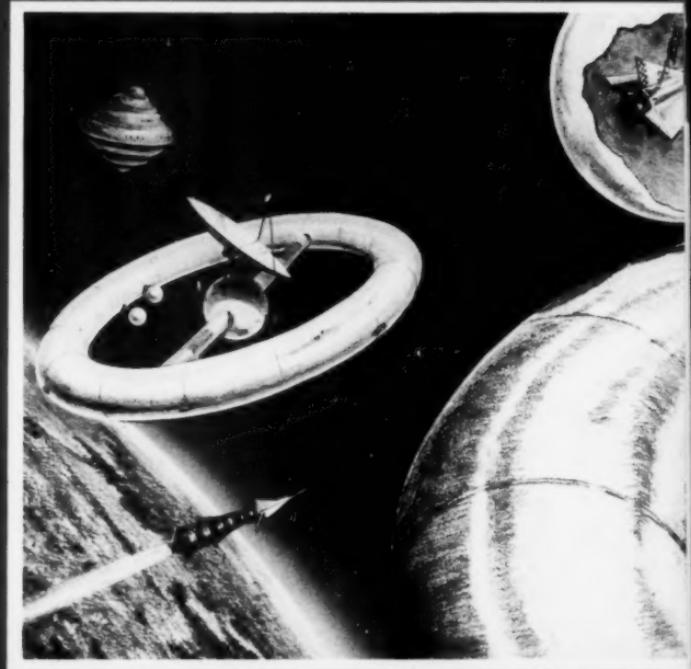


BY

ON

MAY / 1960

# Manage



- ROBOT EXECUTIVES
- MEASURING CORPORATION GROWTH
- HUMANITY AND SPACE
- SPACE STATIONS

8 dollars / year

NMA

## CLUB ANNIVERSARIES

### MAY

**5 Years:** American Airlines Administrative Assn. of Texas ..... Ft. Worth, Texas  
Alexandria Management Club ..... Alexandria, Ind.  
Selma Management Club ..... Selma, Alabama  
Eagle Signal Supervisors' Club ..... Moline, Ill.  
Miami Valley Aviation Management Assn. ..... Vandalia, Ohio

**10 Years:** National Supply Company Management Club ..... Ambridge, Pa.

**15 Years:** Ryan Management Club ..... San Diego, Calif.  
Lockheed Management Club of California ..... Burbank, Calif.  
Commonwealth Plastics Management Club ..... Leominster, Mass.

### JUNE

**5 Years:** Bendix Management Club ..... Mishawaka, Ind.  
Flagship Management Club ..... Chicago, Ill.

**15 Years:** Taylor Forge Management Club ..... Chicago, Ill.

# Manage



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**ON THE  
COVER**

**FABRIC SPACE STRUCTURES**—Uses of expandable fabrics in space is the subject of this artist's rendering. In the background left is the configuration of a fabric space ship deemed possible by scientists at Good-year Aircraft Corporation. In this design several doughnut-shaped rings are connected in such a manner as to form a double pyramid. In the lower left, a space ship is taking off for the moon or Venus. It has fabric fuel cells. Vehicle in left center shows fabric solar heat collector, communications antennas, and bags for fuel and other liquid storage. In upper right, fabric bag around interplanetary vehicle makes possible servicing and repair work under almost normal working conditions. This is accomplished by using a thin fabric bubble attached to the outer wall. The bubble is then inflated to the same pressure as within the vehicle and technicians enter the bubble through an airlock. Routine servicing and maintenance can be done in the same manner. Coated fabrics, either of organic or metallic fibers, held in shape either by internal air pressure or the use of foamed-in-place plastics for additional rigidity, will solve many problems in space flight vehicles, Good-year Aircraft researchers believe. See article beginning on page 46.

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**CIRCULATION THIS ISSUE: OVER 70,000, DOMESTIC AND FOREIGN.**

# Washington Report For Supervisors

by Michael S. Roberts



A serious, damaging shift in international economic patterns is going to cause this country increasing headaches over the next few years. Management, labor, government, are all going to be increasingly affected before current trends toward more and more foreign trade imbalances are reversed.

Solutions to the problem are going to be hard to find, hard to put into effect, and cause ticklish problems with other countries both within and without the free world.

Problem is simple. The U. S. has built an unparalleled economy and standard of living on its industrial might while the rest of the world was recovering from the ravages of one major war (World War II), and a lesser one, (Korea). With some \$50 billion in help from the U.S. government, plus untold investment by private capital, many other countries are now becoming industrial powers in their own right. Their growth rates are tremendous, but their economics, wages, taxes, still don't match ours.

As a result, what is popularly called the new "flood of imports" is making serious inroads on firms and workers in scores of U.S. industries. Making matters worse, the same industrial powers are taking over foreign markets which have in the past bought many billions of dollars of U.S. goods.

## CONFLICTING POLICIES

The effect of this new international trade pattern has been some sharply conflicting shifts in policies of various U.S. groups. And it will lead to many more.

For instance, the traditionally free-trade U.S. labor movement is now openly concerned about job displacement caused by imports. A new "trade adjustment" program of AFL-CIO specialists asks rather than higher quotas or more tariffs a system of help from the U.S. government to ease the impact of imports. These would include higher worker compensation payments, earlier retirement, retraining of displaced workers, more loans to small firms.

The Administration and Congress have yet to take positive steps. The Administration has in recent months invoked a few restrictions on imports. But it is supporting with long lists of lower import restrictions the meeting this spring at Geneva of the General Agreement on Tariffs and Trade (GATT), an international tariff and quota-cutting treaty organization of free countries.

So far, Congress has been content to grumble and refuse to ratify some details of some international trade-tariff agreements on more than an every-two-year basis. But the demands for some more positive program are growing.

## EXPORT BOOST PUSHED

The Administration, as a partial answer, has been attempting through a series of meetings with some 45 industries to push "harder sell" and more competitive pricing of U.S. goods in foreign markets. One of the main features of this program is to enlist the government's aid in getting foreign countries to eliminate restrictions against U.S. goods. This will be a slow, painful process in most cases.

Japan, West Germany, England, France and the Scandinavian countries have been the biggest thorn

in the side of U.S. producers. But some Communist countries too have begun to push for the American dollar, and that could be even more of a threat.

Because of the Eisenhower Administration's long push for "trade, not aid," and its strong resistance to tariff or quota protection, there are some influence groups in Washington pushing for more U.S. investment abroad, both private and governmental.

Theory is that as these countries become more industrialized, their wages will go up, and the poorer countries with an economic jolt will become customers for the first time to replace traditional markets. But because plans proposed so far would require heavy tax-support aid, they stand little chance.

## FOR TRANSPORTATION FREEDOM

The controversy over how much the government should regulate the nation's various types of transportation is being warmed up again. Fuel for the fire is provided by a new report by a special panel of experts appointed by the Commerce Department.

After some editing by the Department, the final report was transmitted to Congress by the President. It contains 78 recommended changes. About a fourth of these, and the most controversial, would require Congressional action.

No action is expected this year. Like its predecessor transportation reports, it will become more a basis of gradual changes, rather than a blueprint for abrupt shifts. Some of the recommendations are bitterly controversial.

For instance, it suggested highway laws be changed to permit tolls on city gateway highways to help divert auto commuter traffic to mass transportation. This touched off a flurry of opposition from car interests, parking lot operators, and others with a stake in daily car commutation.

Recommendations that federal control of railroad freight rates be gradually eased to permit the roads to cut rates to get back some of the business

lost to truckers and airlines also were immediately criticised. So was a recommendation that the federal government impose user charges on air, truck, and waterways to offset the high fixed costs of the competing railroads.

### KEEP THEM IN SCHOOL

Young people who drop out of high school before graduation get dead-end jobs, suffer more unemployment, and earn less pay than those who graduate. This is the finding of a new U.S. Labor Department survey.

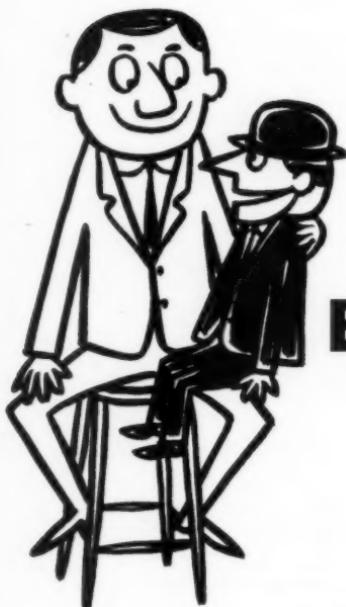
The penalties paid by youths who don't complete high school are even more severe in today's technical world than they were a few short years ago, the Department says.

On the average, a boy who finishes high school can when 25 years old expect to earn about \$155,000 during his life time. But one who only completes the eighth grade will make at least \$45,000 less in his working life.

Boys who fail to finish high school were jobless two to three times as much as those holding diplomas, the survey found. High school graduates made much faster progress to higher skilled jobs too. Most male graduates are in skilled or semi-skilled work in either their first job or soon after, but those who dropped out tend to stay in unskilled work. Most girl graduates were or soon became office workers, while those who dropped out became waitresses or entered other unskilled occupations.

Earnings show the same relationship. About half of the graduates studied were earning between \$50 and \$80 a week. Only a third of the dropouts were in that range.

The study also throws some light on why students drop out of school. Boredom and dislike of teachers are the reasons most often mentioned by the young people involved. A fourth of the girls quit to get married.



# ROBOT EXECUTIVES

*A Growing Threat to  
American Industry*

THIS PAST SPRING, the president of the New Enterprises Club, a student organization at the Harvard Graduate School of Business Administration, invited me to speak at Cambridge. Unfortunately, I was unable to accept, but I have been haunted ever since by the young man's letter of invitation. He stated that the Club's purpose was to focus student attention on opportunity in new enterprises. He deplored the fact that, while students have the ability and education to enter new enterprises, they do not have the motivation.

A prime purpose of the New Enterprises Club, he wrote, is

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to combat "a social and economic trend which, I believe, if not effectively countered, may deprive coming generations of the freedom which past ones have enjoyed. This trend may make business automatons out of all of us."

Lack of motivation to pioneer, to create, to take a chance, to be enterprisers in the best sense

of the word! If that characterizes those now formally preparing themselves for business leadership, if it is present also in thousands of others who each year enter business by avenues other than our university and college business schools, whose fault is it? What can be done to instill the missing urge and recapture the American pioneer spirit? Most important, what meaning does such a lack of the pioneering spirit portend for the future of America and our American system? In net, are robot executives a growing threat to American industry? I think we must all agree they are.

Who is to blame? All of us, in a way. Our social fabric has shown a rapidly deepening pattern of conformity in recent years. Psychologists might say that some of this is due, in part, to our increasingly complex environment. The very bigness of our institutions—government, business and labor organ-

izations—tends to cow the individual and lessen self-confidence in his ability to master them. This bigness has sapped self-reliance, individual daring and initiative. Again, the common feeling of insecurity in today's troubled international situation makes the individual feel small and insignificant. With most old-time certainties no longer certain, it is easier to let someone else do the exploring, be the pioneer—so much more comfortable to follow after the road has been proven safe.

Much has already been said and written of the dangers of conformity in many phases of our national life—politics, arts, education. But until recently, little discussion has centered on the effect of conformity in the business world. This is strange when you stop to consider that we are fundamentally an industrial society, and that business is the heartland of our social fabric. On industry's well-being

by Louis E. Wolfson  
President and Chairman of the Board  
Merritt-Chapman & Scott Corporation

An Address before the  
Sales Executives Council of the Louisville Chamber of Commerce  
November 10, 1958

depends the well-being of us all.

Some are awake to the danger. Mr. C. H. Greenewalt, President of E. I. duPont de Nemours & Co.; Dean Courtney C. Brown of Columbia University's Graduate School of Business; Mr. William H. Whyte, Jr., of *Fortune Magazine*, author of *The Organization Man*, have all recently written or spoken to the point on this matter. As a businessman with some experience in management, I, too, would like to tackle the subject and make a few suggestions about how I think the threat of the robot executive to our society can be overcome.

First, what are the dangers? Or, rather, the one great danger which includes the lesser ones? It is that the pioneering spirit of business will die out because executives at every level will no longer be individual enterprisers—thinking for themselves, displaying initiative, viewing the broad picture, seeing business in its relationship to the social scene, seeking new methods, adapting to changed conditions, keeping the economy healthy and vigorous. Instead, they will allow business to become rigid. And when that happens, private enterprise will be buried, like any corpse.

Please do not misunderstand

me. I am not advocating non-conformity in business as a cult. Discipline and control must be maintained; otherwise, there would be chaos. But the control must be such as to guide, not stifle talent; to encourage, not discourage new ideas; to reward, not penalize initiative. Mr. Greenewalt, as reported in *Business Week*, emphasized that the cult of conformity, the subordination of self to the organization and its established order, must not be allowed to smother the identity of the individual executive. He warned against freezing of patterns of thought and action that might make businessmen unable to lead when the time comes.

Is this idea practical? Grumman Aircraft Engineering Corporation thinks so. A recent advertisement for research department personnel in *The New York Times*, stated: "At Grumman it is the individual engineer upon whom our company depends for its progress, particularly in the field of research. Grumman recognizes that competent research must allow for individual make-ups and temperaments if the creative process is to produce the results sought. This latitude for the individual is the key to research at Grumman."

In my opinion, this point of view should apply to every

phase of business; to the head office, to production and to sales, as well as to the laboratories. Over the centuries, progress has been built through trial and error. Latitude for the individual should be the general rule.

We all know how vital creative initiative is to business success. Think of the tremendous impact of such once new and untried ideas as auto sales on the installment plan, meat packaging, the assembly line, the concept of the supermarket, pre-fabricated housing. Undoubtedly, there were plenty of business "experts" who frowned on each, said the idea was unsound and would never succeed. But someone dared to take a chance, to go ahead—and a new area of economic plenty for the average American was created.

Would the decision to go ahead ever have come out of the robot executives' think-o-meter so vividly described by Mr. Whyte in *The Organization Man*? That is a conference device whereby executives express their individual reactions to an idea by pushing a button under the table. Without divulging names, the machine indicates the composite group reaction, and then the discussion proceeds. You know very well what such a group answer

usually is. "Let's not rock the boat. Wait until George does it, and see how he comes out."

Now mind you, what I say here is no criticism of majority rule per se as a way of democratic life. It is fundamental to all our freedoms. But it can be abused. Unless the individual is provided full opportunity to express himself, and encouraged to do so, majority rule can defeat its very purpose.

Strangely, while fighting the communist theory of regimentation, we ourselves have fallen increasingly into a conformity pattern that tends to suppress individual thought and action. As John Stuart Mill wrote on liberty a hundred years ago: "Whatever crushes individuality is despotism, by whatever name it may be called."

Any form of robot rule can be dangerous, whether in government or business. We must not stifle the dynamic approach to solving the problems of today and tomorrow. And that means we must not stifle individual initiative and enterprise. The progress and growth of America and of the Western World have always depended on the creative thinker, the individualist. The shackling conformity of the Middle Ages had to give way to a period of individual creativeness before our modern world could be born.

This was as true in the development of modern economic life as it was in art, science, literature and music. New ideas and new inventions have largely been discovered by the individual thinker and doer. The system of private enterprise on which our way of life is built can hardly long endure unless the spirit of enterprise of the individual is constantly encouraged.

What can we, as businessmen, do to preserve and foster the pioneer spirit? What can American business do to ensure America's future and its own future? We can do much. But to do so, we must put our house in order. We must change our thinking; we must stop paying only lip service to an ideal. We must prove that we really want what we say we want. Business always claims to be critical of the "yes" man and pictures the "no" man as the hero. Unfortunately, the "no" man often gets the gate. What we need is less of both the "yes" and "no" man and more of that man who creates the ideas on which their comment is invited. No one can say "yes" or "no" unless someone poses an idea.

In *The Organization Man*, Mr. Whyte claims that business makes a fetish of seeking the well-rounded man, "one who

does not think up ideas himself but mediates other people's ideas, and so democratically that he never lets his own judgment override the decisions of the group." Mr. Whyte then goes on to say that if the standards set up by many personnel managers were applied across the board, the majority of corporation executives would be out of a job tomorrow. And, he adds, "if they had been well-rounded, they wouldn't have gotten to be executives in the first place." I feel I must agree.

Present practices lose us much potential talent. Young men with adventuring minds are not fools. If they see little scope for creative thinking and action in business, they will not enter it. Or, if they do enter, they may soon leave or lapse into discouraged conformity.

Therefore business must first establish a healthful climate and build tolerance for men with imagination. For the practical businessman, faced with the constant pressure of day-to-day problems, this will require patience and fortitude. But it is no cliche to state that this can be an instance where patience is its own reward.

The creative talent now available to business, and which it is not using effectively, can be encouraged. Certain practical steps to this end can be

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taken by every company. More opportunities can be given people at every level to make decisions, and to base those decisions on their own evaluation, rather than on the pattern set by others. Ways can be found to make sure that minority opinion really gets a hearing. The numbing effect of boss-prestige can be lessened in cases where it prevents free expression of opinion. Often the junior executives are overawed by the boss and find it hard to speak frankly. Management can find ways to overcome this. Since the impact of different kinds of people on each other stimulates original thinking, groups which bring different types together can be created. Concrete rewards in terms of increased responsibility, freedom of action and monetary gain are obvious musts.

Secondly, business must sell itself to the brightest brains of coming generations. It must do so not only in dollar rewards, but in terms of those values which the truly creative man most cherishes—scope to experiment, to venture, to make an impact on his generation, to contribute something of lasting value to his country and to his fellow man.

You may deride this need and cite the fact that even as late as 1955 the largest single

undergraduate group in this country was made up of those majoring in business, to say nothing of those enrolled in graduate schools of business. No dearth of business talent in the foreseeable future, you say.

But what is important is not how many want to enter business, but their calibre. I would point out that in 1951 only two undergraduate groups failed more frequently in passing the Selective Service tests for deferment of college students than did those enrolled in business and commerce.

Thirdly, and most important of all, business must see to it that the next generation of businessmen is adequately trained to shoulder its responsibilities. By this I do not mean mere technical competence. They will get that. But rather I mean training that will enable them to keep abreast of the changing concepts of life, adapt business to the needs of tomorrow's national and international conditions, and ensure that private enterprise is regarded as a beneficial and progressive social and economic force.

Training has two stages—that which a man gets after he gets on the payroll and that which he gets before. Business must train the executive talent within its own organization to the broad outlook I have discussed.

In addition to technical training, we should encourage people already on our payrolls to become men of broad knowledge and understanding; to read, think about and discuss topics outside the range of their immediate day-to-day business interest. We would do well, I believe, to encourage attendance at lectures and discussions by authoritative leaders about all phases of present world interests—social, political, economic. We should encourage their participation in a variety of activities outside the office to broaden their experience and insight.

As regards those who take business courses before approaching the employment office, what type of training should be given them? Are they receiving the right type now? Let us see how one business educator sizes up the situation. Dr. Robert D. Calkins, President of the Brookings Institution, former Dean of Columbia University's School of Business, and former Director of the General Education Board, pointed out some years ago that business education had not been able to keep abreast of the changes in business and the whole conception of economic life. "Thus," said he, "as we move into the half century that may well determine whether

or not a free economy will survive, we find ourselves still unprepared, on any adequate scale, to train leaders who are competent to direct the increasingly complicated affairs of the system we have erected. In brief, we are not prepared to give that system a fair test." Other knowledgeable authorities concur in this opinion.

What should be done within the colleges, not only at the graduate level, but throughout the educational structure, to bring training in line with needs? I have given a great deal of thought to what experienced educators recommend, and offer some suggestions based on their studies and on my own experience.

The first need, obviously, is to improve selection methods in order to ensure, to the limit of present day techniques, that those accepted for business training will have a pioneering type of mind, an individual outlook, the creative urge so needed by business today and tomorrow. Every effort must be made to ensure that they are indeed the individuals best qualified to vitalize our private enterprise system.

Evidence suggests that such characteristics are present on college campuses. A recent report of the Commission on the College Student of the Ameri-

can Council on Education, according to *The New York Times*, states that, "'Joe College' is no more . . . his place has been taken by a much abler and highly individualistic seeker after independence rather than conformity." This is good news.

Modern psychology provides us with test tools that give us some objective measurements of individual characteristics and potentialities. I advocate that fullest use be made of these aids in the selection of business students and, of course, in business too.

Next, I urge that students seeking a business career acquire a broad education, with emphasis not only on economics, but on history, philosophy, sociology, political science, and other similar disciplines. I urge that graduate schools of business require such education as a prerequisite for admission, and continue throughout the graduate training to emphasize broad fundamental knowledge.

Nor should schools, both undergraduate and graduate, be content merely to see that the business students absorb wide knowledge. They must strive to motivate them to assume leadership, to venture and experiment. They must seek and awaken in them the pioneering spirit.

If academic preparation for business is to be along these broader lines, our educational institutions must receive encouragement from the business world to pursue these goals. This, in turn, requires a revision and widening of business thinking as regards types of education it will support and encourage. Business must encourage the development of liberal arts programs in universities and colleges, both tax-supported and private. Business must be willing to gamble on the long-term results, the ultimate rewards, rather than look mainly for immediate return in practical research findings and business studies.

Business must also make it clear to the colleges and the students that a sound general education will be considered an asset on the hiring line when college days are over. After all, colleges and students seek to give business what they think it wants. We must make clear to them that we have modified our thinking as to the comparative values of the creative and the conforming individual—that we have put our house in order.

At Merritt-Chapman & Scott Corporation we are constantly on the lookout for youth with potential executive ability. In

judging them, I look not alone for those obvious traits, generally considered as prerequisite to success; good health, brains, common sense, and native ability. I look also for an unflagging desire to get ahead, a capacity and desire to continue learning, an imaginative and original outlook, the ability to think for oneself, and the courage to speak out for one's convictions and to act upon them.

The non-conformist, particularly in this period of conformity in the United States, has no easy time. Actively or passively, the group resents him. His actions are often criticized, simply because they do not conform to the group pattern.

But fear of being considered an individualist should not deter anyone from being a dynamic enterpriser, a non-conformist, a pioneer in the best sense of these words.

The pioneer made America. Frederick Jackson Turner, author of the famous historical study, *The Frontier in American History*, believed that the essential qualities of the American character came from the influence of the frontier. Among the qualities the early pioneer possessed, he noted "inquisitiveness," a "practical, inventive turn of mind," and "restless nervous energy."

This is the pioneer spirit we need now and for the future.



"Hodgekiss and Purvis welcome you back from your vacation, Miss Gillies."

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## *No Salesman . . . ?*

by Eleanor M. Marshall

WHEN MARY FLANAGAN saw the condition of her wash, she raved. But instead of frothing at the mouth as she had previously done, she descended upon Mayor Joe Burns and reduced him to froth! For she had the entire membership of Leesville's League of Women Voters, Joe decided, as the ladies crammed into his office Wednesday morning after Mary had spent all day Tuesday phoning them to make sure that they would.

Joe was still busy with the morning mail when his secretary came in to say, "There's a delegation of women waiting to see you, Mayor Burns."

Joe smoothed what was left of his black hair, settled his tie which he hoped wasn't too flashy as he said with the cordiality of a born politician, "Send them in."

He jumped up intending to

get more chairs as he saw that there weren't nearly enough, but Mary Flanagan's contralto stopped him in midstride:

"Mr. Mayor," she said, "don't bother. We're here on an important matter that we just want *your* answer, yes or no."

"I'm always for anything that will please the ladies," Joe assured her, busily trying to get everyone a seat.

"If you tell us yes or no," went on Mary's next door neighbor, Mrs. Martin Macomber. She always had a finger in any local pie and some

said she did more of the banking business than her husband who was president of Leesville's First National Bank.

"Yes or no about what?" Joe asked.

"The stinks and dirt which National Chemical dumps on us, our children and our homes," intoned Sarah Keller, who as head of the educational board, was used to speechmaking.

Joe was dumbfounded, because most of Leesville's wage earners were dependent upon National Chemical, which was the town's biggest factory, and every woman facing him knew it. He realized his re-election depended upon the way he dealt with this matter, that he couldn't smile this one off and forget about it, for these were voters and election was only three weeks away. He began to sweat.

"We've all hung out our clothes and taken them in dirtier than they were before they were washed because the wind had brought Chemical's smoke and debris our way," Mary Flanagan charged, "like it did to me again day before yesterday."

"It's not only the washings, Mary," soothed Mrs. John Allen. Her husband was the only doctor for miles around. He was depended upon for every kind

of ailment. "John says there's real danger to our health. Just last week I read of a place no larger than our town where over a thousand fell ill and 17 died just because of a condition similar to the air pollution we have right here."

"I read that, too," Joe agreed before he thought.

"Then you'll protect us and our families, Joe," beamed his Aunt Mollie proudly. "I've been telling everybody you would."

"Of course," Joe promised, with what heartiness he could muster. At the thought of what those two words would entail, he grew even more sweaty. He wiped his florid face with a handkerchief he saw was not now as white as the day he had bought it in Boston, his hand shaking with nervousness. "You know how National Chemical works. Because they are providing jobs and paying the biggest taxes, they feel privileged—"

"To cause our deaths?" interrupted Mrs. Allen. "There must be a statute about air pollution. Isn't there?"

Joe shrugged well-tailored shoulders to indicate his ignorance. "I don't remember it, Mrs. Allen."

"Then we'll make up a petition," Sarah Keller suggested. "We'll all sign it. You can show it to Hal Bradford."

So Joe was carrying that long

list of names the afternoon he went to the golf course with Bradford for their last game of the season.

"Something's bothering you," Bradford said after Joe missed an easy putt.

Joe seized this opening to tell about his visitors, and ended showing Bradford their petition.

"I'd like to get rid of the smoke and smell, Joe, as much as anyone. But it can't be done. I don't like air pollution any more than you do. If you pass some law about it, I'll have to move away, that's all. You're business man enough to know that getting rid of smoke would cost me hundreds of thousands of dollars. I'd have to rebuild my whole plant."

Joe was shaking his head.

"You mean you're going to let a bunch of women scare you?" Bradford asked.

"No, I'm not. But those women are right. I know they are and so do you, Hal. For that young fellow from Pittsburgh who was selling equipment called on you last month. He was in my office right after the women left and told me exactly how much equipment you'd need and the cost. It's less than \$5,000. Now you can buy or not. I'm not going to tell you how to run your business, but—"

"Of course not. But that \$5,000 won't be kept secret during your campaign for re-election, eh? I know when I'm licked, Joe. We'll get the equipment right away, if you keep the price under your hat."

Joe was glad he had had sense enough to flub a shot. After all, Hal had his pride. He wouldn't want everyone to know that for such a trifling sum as \$5,000 he had fouled up the air.

"If you put in that fellow's dust collectors, Hal," he got out as he swung mightily, "you may even make money on the deal. I saw the figures to prove it for another firm. They caught their fly ash and it was three quarters carbon. By returning it to the furnace, they saved over \$32,000 last year."

Hal gave an astonished whistle. "That's what you should have told me in the first place," he complained. "You'd never make a salesman, but you'll be re-elected with the biggest plurality any mayor ever had. Who knows but what the ladies may even send you to Washington?"

Joe just grinned as he thought, maybe I ain't a salesman, but you signed on the dotted line and no other mayor ever was able to make you do it over a measly five thousand bucks!



## *A Different Perspective*

by Charles W. Bellamy

THE VERY NECESSARY PURSUIT of technological progress in the arts of war has brought mankind to the threshold of the greatest achievement of all time: the ability to probe, perhaps even to explore, the vast reaches of the solar system and of the universe in which the planet Earth is so insignificant, and yet so important, a part. As this progress continues and as the expenditures mount, it is proper that thinking men consider the impact of this achievement on themselves and their kind; it is proper that men of business question whether the probable gains are worth the costs, and whether more bounteous returns might be realized by alternate investment. To that extent, the article by William W. Taylor (*Humanity vs. Space . . . Which Needs the Conquering?*, MANAGE, March, 1959) is pertinent. However, anything akin to a conclusion that space research should be stopped and the funds be diverted to sociological research and to "product improvement" of the human being is fraught with deep peril and needs closer examination.

In truth, medical research seems to be enhanced by a liberal application of funds. A growing flood of dollars, from sources ranging from private contributions to federal funds, is steadily being made available for such purposes. Like all research in which the discovery of new scientific relationships

is involved, however, two limitations must be recognized:

(1) The successful eradication or treatment of a specific disease comes only after patient and plodding research culminating in a scientific breakthrough; such events are not susceptible to scheduling, and no amount of money, expended in a crash program, will accelerate the coming of the final achievement.

(2) The number of medical scientists possessing the ability and intelligence to conduct useful research is unfortunately limited; to make available more money than these rare men can usefully consume would be gross waste, and would invite the incompetent and the charlatan to enter the field for personal gain.

It is almost certainly true that the "dollar saturation point" for medical research has not yet been reached, and that much more financial support could be usefully consumed. It is also certain that the hypothetical dumping of a large fraction of the national defense budget on the heads of our dedicated medical scientific corps would represent the most eco-

nominally unsound financial expenditure of all time.

How about sociological progress? Infinitely desirable as it is to hope for great improvement here, significant and measurable progress in this field is even less guaranteed by lavish funding. The difficulty lies in the fact that we must deal almost entirely with abstract and intangible concepts, and that no concrete program of action having a high and indisputable probability of successful acceleration is vizualizable; in truth, it is extremely doubtful whether any "crash" program in human relations would measurably affect the course of human history. Progress in this field appears to move with the ponderous slowness of evolution.

And yet the signs of such progress are all about us. In a half-century our nation has progressed from an era in which ruthless exploitation of our natural resources was commonplace, to a day in which reforestation is the rule rather than the exception in the lumbering industry; in which effective action to prevent premature depletion of our fuel reserves is manifest, and in which we are capable of giving national thought to the possible effects of radiation upon our progeny. The hopeful sign here

is that none of these problems, if totally ignored, would materially affect our lives in our generation; it is a measure of our human progress that we have advanced to the point at which we take effective (and often immediately costly) action *for the benefit of our descendants* many, many generations in the future.

The great ideas and concepts which we believe to be good, and by which free and enlightened men live, have been carried to the ends of the earth over the centuries. It is difficult to imagine that the teachings of Christ could be any more widely disseminated. And yet in our own lives we have witnessed the rise to immense power of a godless ideology which threatens to force mankind into a new and horrible Dark Age. More money, judiciously spent, might conceivably accelerate the communication of our great principles to populations who may not be informed; but again, no amount of money will cause people to accept and believe deeply in ideas which they, for one reason or another, do not want to accept. It has been amply demonstrated that the United States cannot *buy* friends, and that vigorous attempts to do so generate serious and unwanted reactions.

Our present national policy appears to be dedicated to the sound idea that we will be judged by others on the basis of our deeds, not our words. If we present for the examination of the rest of the world the continuing phenomenon of a strong, happy, prosperous nation, in which living standards are high and in which the freedom of men is assiduously preserved; if we steadfastly insist on freedom for others and consistently make all reasonable efforts to protect it; and if our obvious accomplishments equal or exceed those of the communist nations; then there is a reasonable hope that world opinion will swing in our favor and that we can confidently await the degeneration and collapse of the basically untenable doctrine of communism. Moreover, there is a fair chance that this can be brought about without engaging in total war.

However, it is certain that such a policy is doomed to failure if we do not maintain the ability to protect ourselves and our allies. This policy will be seriously compromised, also, if we are unable to exceed the accomplishments of Russia in any one of several important areas of activity.

This brings us back to the propaganda value of space exploration. Whether we like it

or not, this has become one of the vital areas in which we dare not be outclassed. Fortunately—and this is of the greatest importance—no major technical breakthroughs are required in order to make very substantial progress in this direction. The basic scientific knowledge is available now, and is open to exploitation. Consequently, within very wide limits, *the rate of accomplishment will be proportional to the effort expended*. In our American structure, effort expended means money expended.

As to the more tangible benefits of our national space programs: the military values of space technology are only dimly perceived at present. Satellite reconnaissance and mapping, certainly; perhaps improvements in military communication and radar interception. Bombing, and battles in space, do not appear to be a significant probability. Among non-military considerations, intercontinental television and complete weather observation and forecasting rank high, and may ultimately pay concrete financial dividends.

But beyond this lie two other thoughts that make the effort incomprehensibly worthwhile. The acquisition of broader knowledge of the universe we

live in, without thought of immediate practical returns, has inevitably proved to be to the long-range benefit of mankind. And the act of exploration and discovery seems to be a part of the destiny of man. We cannot

fail to sense the satisfaction and the grandeur of living in that narrow slice of time, out of all the eons of past human history, in which man will begin the exploration of the ultimate unknown.



"My swivel chair is getting tight on me."

# Management Tries Its Wings

by Mark Metcalf



**A** FEW YEARS AGO a manufacturer in a small city in New England bought a light plane for business use. He found it a great time-saver in making trips to customers and suppliers. But he was never able to persuade his best friend, a local banker, to set foot in the craft.

Last fall, the same banker invited the manufacturer to join him on a vacation trip to Florida—and inquired, hopefully, whether the manufacturer could fly the two of them down in the company plane.

This story highlights a dramatic change that has taken place in business attitudes toward company aircraft. More and more industries are taking to the air, giving businessmen a new yardstick with which to

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measure time and distance, and management a new tool for serving customers in all sorts of fields.

Management men at all levels need to be alert to the dimensions of this development. It is one more symbol of the determination of many companies, large and small, to improve their competitive position.

Private planes can give top executives extra working hours

to devote to corporate problems. They permit salesmen to cover territories faster and more frequently. Often they can prevent costly shut-downs due to engineering difficulties by flying in technicians, or an emergency shipment of repair parts. In more than one instance, a labor relations expert has been flown to a plant where a labor dispute threatened, and has been able to head off serious trouble.

Just after World War II, company-owned planes accounted for about 12 per cent of the total hours flown by non-military aircraft in the United States. By 1955, that figure had risen to 45 per cent.

For 1960, it's estimated that business flying will make up a full 50 per cent of all non-military hours of flying.

Sales of small airplanes in 1958 totaled 6,500 units, about 300 more than in 1957, and in 1959 unit sales rose to about 7,000. Dollar sales volume broke all records.

Businessmen have taken to the air in such numbers that company-owned planes now log far more miles of flying than the planes operated by the scheduled airlines—though the latter planes, of course, carry many more passengers per trip.

What is becoming increasingly clear is that the air-travel

needs of the nation's business and industrial enterprises can't be filled by the commercial airlines alone, despite their expansion of service since World War II.

Today, the commercial airlines serve only about 600 cities. But there are 5,000 additional airports around the country, and 4,000 of them offer service facilities to the general aviation fleet. This fleet, in addition to planes used for business flying, includes aircraft for commercial charter and air taxi operations, pleasure flying, and "utility flying." This latter category covers such activities as crop dusting, pipe, power and telephone line patrol; aerial mapping; mineral prospecting and forestry, harbor, border and traffic patrol.

As C. L. Hamilton, managing editor of *Flying Magazine* points out, business flying is a peculiarly American development. It is not yet a significant factor in the rest of the world. He notes: "The state of California alone, with 7,970 private or corporate owned planes and 42,139 licensed pilots, has more civil planes and pilots than all the rest of the world combined outside the U. S. The same can be said of Texas, Ohio, Illinois, Michigan and New York."

All told, business and industry now have roughly 30,000

planes in active service, compared with only 1,600 planes in the commercial airline fleet.

Take a look at some of the ways privately-owned planes are serving as new tools for business concerns:

- Bruce Dodson & Company, Kansas City insurance organization, keeps two planes ready to fly adjusters to the scenes of fires or other casualties. The result is faster settlement of claims, increased good-will, and more satisfied clients.

- In Modesto, California, C. E. "Chuck" Sargent, a used car dealer, climbs into his company plane and scouts the countryside for good used cars to sell on his Modesto lots. Sargent figures his plane helps him sell about \$750,000 worth of cars a year.

In its 12 years of existence, the aviation department of Sunray Mid-Continent Oil Company has flown over 3 million air miles with a perfect safety record. The company has five transports. A Sunray executive declares: "Our flight operations during the past few years have saved us more money than any other department in our company."

- Charles E. Walters, president of Spokane Concrete Pipe Company, says: "By traveling

three different airlines and one train, I can reach my company's distant plants in a day and a half. By our company's plane, it's only 4 hours, 50 minutes."

A North Carolina bakery firm has its own light transport plane to permit officials to visit 72 plants spread from Minnesota to Florida. Sears, Roebuck & Company currently is racking up 350,000 miles a year on its five planes. Weyerhauser Timber Company finds its plane fleet vital in supervising land holdings in 30 states.

Business flying isn't by any means confined to big corporations. At Springfield, Minnesota, four bricklayers have been commuting regularly to a job 60 miles away in a 4-place aircraft. In Montana and North Dakota, two flying ministers each serve rural congregations scattered over 4,000 square miles.

Judge B. Ray Schauer, associate justice of the Supreme Court of California, travels to court sessions in Los Angeles, San Francisco and Sacramento with his own plane. Arizona's Governor Paul Fannin credits his purchase of a light plane in September, 1958, with helping him win the governorship two months later, even though the pre-election odds were 3 to 1 against him. He used his plane to campaign throughout the

state, talking to people in small towns and out-of-the-way communities. On a typical trip he flew from Phoenix to Prescott for a meeting; to Winslow for a second meeting, and then returned to Phoenix. The distance of 317 miles took just 3 hours. By car the time would have been 12 hours.

What's behind the boom in corporate flying? Several reasons account for it.

For one thing, more and more companies are locating new plants in small communities, off the routes of the scheduled airlines. Executives can save time by using company planes to get from corporate headquarters to these plants and back home again.

For example, there's no scheduled passenger train or airline service into Andalusia, Alabama, the home of the Alabama Textile Products Corporation. So a light plane brings customers to the main plant, and flies ATPC executives between plants in Alabama and Florida.

The air-minded businessman can leave a job when it's finished and take off for another one, instead of having to wait for commercial transportation. And time spent in flying need not be wasted; many executives catch up on paperwork or hold conferences while airborne.

In an era of increasingly keen competition, planes have become important in scouting new sales prospects and landing orders. Some firms use their planes to bring in customers who want to inspect plant operations. Others depend on the light craft for making emergency freight shipments, or to provide engineering and trouble-shooting service.

Rowe Manufacturing Company, a vending machine manufacturer, keeps a plane based at Atlanta, Georgia, to respond immediately to customers' calls for quick service. The single-engine plane has carried Rowe repair men on flights as long as 1,500 miles to service vending machines.

Says an executive of International Harvester Company: "Our executive group is perhaps the smallest user of company aircraft, and our engineering and sales personnel is probably the largest."

A Harvester official gives this example of how a company plane can be useful in an emergency:

"The manufacturing people at our Louisville works had casting problems with hydraulic pumps provided by an outside supplier.

"A shortage of pumps would have meant suspension of pro-

duction. The planes—two DC-3's—were brought into use. New castings were made by the supplier at night. These were picked up early in the morning and flown to Louisville, where they were machined and tested immediately. The supplier was informed of necessary changes; new castings were made that night and flown to Louisville the next morning."

Industry today is scampering to find top-notch recruits for corporate jobs, and frequently the company plane helps in the hiring process. Here's the way it works in one big Midwestern manufacturing concern: When a company talent scout spots a recent college graduate or an experienced man in a far-off city, a company plane is sent to bring the applicant in for an interview. These interviews take place mostly on week-ends, so that interested job prospects can be flown several hundred miles back and forth for talks and still show up for work at their present jobs on Monday morning.

A medium-sized Michigan company justifies its use of a company plane by a simple formula. A 50-hour-a-week administrator earning \$10,000 for a 45-week year is worth \$4.40 an hour to the company. The average top executive, they

estimate, has a \$25 hourly value. Each hour flown in a company plane saves an hour and nine minutes of commercial airline time to take an identical trip.

Despite statistics that show that travel by private plane is far safer than driving by auto, many companies have rules that limit the number of top officials who can fly in the same plane.

International Harvester, explaining its restriction on the number of people from the company who can fly together, says, "This applies to both company and commercial transportation. It does not reflect lack of confidence in our aircraft equipment or personnel, but rather is in anticipation of possible calamity outside our control."

International Business Machines Corporation specifies that no more than two of its officers or directors may travel in the same plane. Monsanto Chemical Company has a similar rule. Crane Company, which lost six top executives in a plane crash three years ago, now has a rule that forbids more than two officers or department heads to travel together by any mode of transportation, whether by plane, rail or auto.

The National Industrial Con-

ference Board, surveying the travel practices of 102 leading industrial corporations, found that 60 per cent of them put restrictions on the numbers and ranks of top management men who can fly in the same plane.

Take a look at the planes companies are using today and you find all types represented. They range from light, single-engine craft with cruising speeds of a little over 100 miles an hour, to sleek new turbo-props and jets with speeds up to 500 miles an hour.

Depending on its needs, a company can buy a light plane seating two or three people for as little as \$7,500, or it can get delivery of a light jet transport for 10 passengers with a price tag of one million dollars. Most company planes, however, are light single-engine or twin-

engine craft costing between \$10,000 and \$60,000.

More and more companies appear to be finding that corporate aircraft have proved beyond a doubt their worth as cost-cutters and profit-strengtheners. Bearing out this view is a recent survey showing that even in the unlikely event of a major business depression, only 10 per cent of the surveyed plane owners would consider giving up their ships.

In the words of one aviation authority, "The small airplane is as much an efficient tool of modern business as is a computer in the office or the automatic machine tools in the plant. Increasingly, progressive business concerns are finding planes indispensable in this period of keen competition and business growth."

## 1960 Management Conference Dates

|           |                                                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------|
| May 7     | Southern West Virginia<br>Council of NMA Clubs<br>Morris Harvey College, Charleston, W. Va.                                        |
| May 14    | NMA New England Area Council<br>Fitchburg, Mass.                                                                                   |
| May 22-27 | 41st International Conference<br>National Office Management Association<br>Queen Elizabeth Hotel and Show Mart<br>Montreal, Canada |

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# JET AGE PROBLEMS IN CONCRETE, TOO!

by Dick Ashbaugh

**O**N A CRISP, CLEAR spring morning some months ago, a giant inter-continental bomber of the Strategic Air Command roared into the sky from the concrete runway of a West Coast Air Force base. The thunderous concussion of the wide open jet engines left an expanding ring of shock waves that rattled windows for miles around.

Ninety seconds later the eight-million-dollar defensive weapon was a frightful mass of twisted, smoking metal in a ravine ten miles away, its crew dead in the wreckage. It was the third take-off crash in as many months.

Investigating the tragedy, Air Force engineers came up with one grim fact; at a critical point on the take-off run, a jet engine is as delicate as a bone china teacup. Rushing down the runway, gulping air in a fantastic torrent, the engine will pick up almost any loose object in its path. Wedged in the shattered

compressor blades of one engine, investigators found a ball-peen hammer evidently left on the runway by a careless workman. Metal objects, pieces of lumber, stones, or bits of loose surface concrete are equally destructive.

The Air Force faced an odd and vexing problem. Concrete runways, many of them built during World War II, take a brutal pounding under today's greatly expanded use. Jet blasts, corrosive chemicals, and de-icing salts have caused extensive damage to the pavement surface. Unless the runways could be kept smooth and clean other tragic crashes were bound to follow. Complete replacement was so costly and time-consuming as to be out of the question.

The solution, when Air Force engineers stumbled across it, proved to be one of the most revolutionary advances in the construction industry over the past half century. Applied to civilian use its value could be startling. Untold millions could be saved on repair and upkeep of our vast network of concrete highways. Cities, towns and villages could resurface badly damaged concrete pavements at a fraction of the cost of replacement. Even the homeowner with a concrete problem

could solve it with the new process.

The discovery, now thoroughly tested and approved by Air Force and government engineers, is a completely new method of applying a thin coating of concrete over a damaged slab and making it stick permanently. The result is a rigid new surface, clean, smooth and almost impervious to wear. In some cases the new surfacing may be as thin as one-eighth of an inch. The process is not patented, nor does it require any unusual tools or trick materials. It can be used on anything from an eight-lane turnpike to a garage floor.

Actually the new discovery can best be described as a different way of using an old idea. Concrete pavement has been successfully resurfaced in past years. However, the surfacing was seldom less than four inches thick and was almost equal to placing a costly new slab over the existing pavement.

As yet the new process does not have a name and is known in engineering parlance as "thin bonded concrete resurfacing." For years construction men have tried to find a way to resurface a damaged slab with a skim coat of fresh concrete. Nine times out of ten it would

shatter like plate glass at the first frost. In the tenth case it might last for years with no signs of wear. Puzzled concrete men were never able to figure out what they had done right in one case and wrong in the others.

Back in 1937, the Portland Cement Association, a national organization devoted to research in concrete uses, began to take a serious look at something called air entrained concrete. They were searching for a way to prevent highway damage resulting from the use of de-icing salts. Their technicians discovered that a relatively new type of concrete could be produced by adding a small amount of certain chemicals to the dry cement. Any material with an oil or fat content seemed to do the trick. Animal or vegetable fats, natural wood resins, and other organic compounds all worked. The result was a concrete laced with billions of tiny air bubbles. Although as rigid as ordinary concrete, the tiny bubbles allowed the new mixture to breathe. Freezing or thawing, always a bugaboo with concrete, had little or no effect on this plastic composition.

Further development proved air entrained concrete to be easier to handle. It spread smoothly and stuck firmly to

almost any surface. It was, in effect, homogenized concrete. Its cost was the same as ordinary concrete.

Observing these attractive qualities in the new mixture, engineers began to get an inkling that air entrained concrete might be the answer to the problem of thin resurfacing. They were on the right track, but there was still considerable research to be done.

One of the leading researchers was A.A. "Andy" Anderson, chief of the Cement Association's Research and Development Division. Anderson, a veteran of forty years in the concrete business, made the project his personal concern. Several years of laboratory tests followed before Anderson felt the process was ready for a field test.

The site he picked out was a tough one—a 780-foot section of the Pennsylvania Turnpike that had been a constant repair problem. The new surfacing solved the problem completely. Today, after several years of heavy traffic, the section shows no signs of wear. Cores cut from the pavement with diamond-studded drills show the new surface bonded permanently to the old slab. In the following months a half dozen other test installations were made in different parts of the

country. All produced the same results.

After careful study of the results, the Portland Cement Association released a routine engineering report to its members and to the industry trade journals. Acting with the typical caution of an impartial research organization, the Association report was so restrained it failed to cause any undue excitement among pavement engineers or contractors. One of the most revolutionary advances in the history of the cement industry lay buried between the dry factual lines of a field report.

It didn't stay buried for long. Engineers of the Air Installations office in Washington, searching relentlessly for a solution to their runway problem, came across the report and promptly pressed the Cement Association for details. What they learned brought about immediate action.

The first Air Force installation was made at Selfridge Field in Michigan where 45,000 yards of runway and parking aprons were in critical need of repair. The Selfridge project, supervised by Air Force engineers with advisory help from the Cement Association technicians, is typical of installations now being made at Air Force bases all over the world.

The process is basically a series of carefully planned steps that must follow each other in exact order for a successful resurfacing job. Complete cleanliness of the old pavement is the most important single item in the entire operation. On a large area, such as Selfridge, power machines similar to giant floor sanders were used to break away all loose and faulty surface concrete. The debris was swept away by hand and mechanical brooms. Expansion joints were thoroughly cleaned of sealing compound. Oil spots were scrubbed with a strong detergent. The entire area was then flushed with clear water.

The final step in the cleaning operation, and one that guaranteed complete cleanliness, was to spray the entire area solidly with a film of commercial muriatic acid. The foaming action of the acid etched the surface of the old pavement to the consistency of fine sandpaper. After the foaming action stopped the area was thoroughly flushed with water to remove all traces of the acid.

If there is any secret about the new process, this use of muriatic acid seems to be it. At any rate it is the one important step concrete engineers overlooked in their long search for a thin resurfacing method. The

acid causes no unusual chemical change in the old pavement. It merely serves as an ultimate assurance that the slab is free of any foreign matter that might prevent a complete bond with the new surfacing.

After the cleaning operation, the rest of the resurfacing process follows standard concrete procedures—with one slight exception. The prepared pavement is first covered with a paint-like mixture composed of one part cement and one part water. This is swept on with brooms to the depth of about one-eighth inch. After this the air entrained concrete surfacing, mixed to the usual pavement specifications, is poured on from ready-mix trucks, and

finished by hand or machine in the usual manner.

Due to the high labor cost in preparing the old pavement, the thin resurfacing process cannot be called exactly cheap. It is, however, a tremendous saving over the total replacement of an entire paved area. Throughout the country literally billions of square yards of basically sound concrete pavement can now be made like new.

In addition to the saving on old pavement, engineers predict that the development and use of air entrained concrete in our vast new highway program will result in almost trouble free concrete pavement with incalculable savings to future taxpayers.



"I talked during his monthly pep talk"



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*The desire for growth is a basic objective of business firms. The phenomenon of growth may be expressed in many forms: an increase in sales, a rise in profits, expansion of assets, an enhancement of the stockholder's equity, or an improvement in the company's position in both industry and the national economy.*

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# MEASURING CORPORATION GROWTH

by Murray L. Weidenbaum  
Economist, Boeing Airplane Company

THE PHENOMENON OF CORPORATION GROWTH can be measured in various ways.

**Sales.** Growth can be determined by measuring the value of output of the firm. Increases in sales also involve changes in other measures of size—assets and employment.

**Assets.** Increases in assets are necessary to support a higher level of sales. Plant, equipment, and inventories vary with the volume of production.

**Employment.** Higher levels of employment result from the need for manpower to obtain increased production and sales. Both the asset and employment measures of growth are commonly used. They tend to reflect the absolute size of the firm as well as its size compared to other firms in the industry and national economy.

**Market Share.** Growth is frequently measured by examining a corporation's share of total industry sales. Such a measure indicates the degree of industry concentration and to some extent the degree of market control.

**Net Worth.** Net worth is another measure of growth. The increase in the asset excess over liabilities of the firm indicates the enhancement of the shareholder's equity.

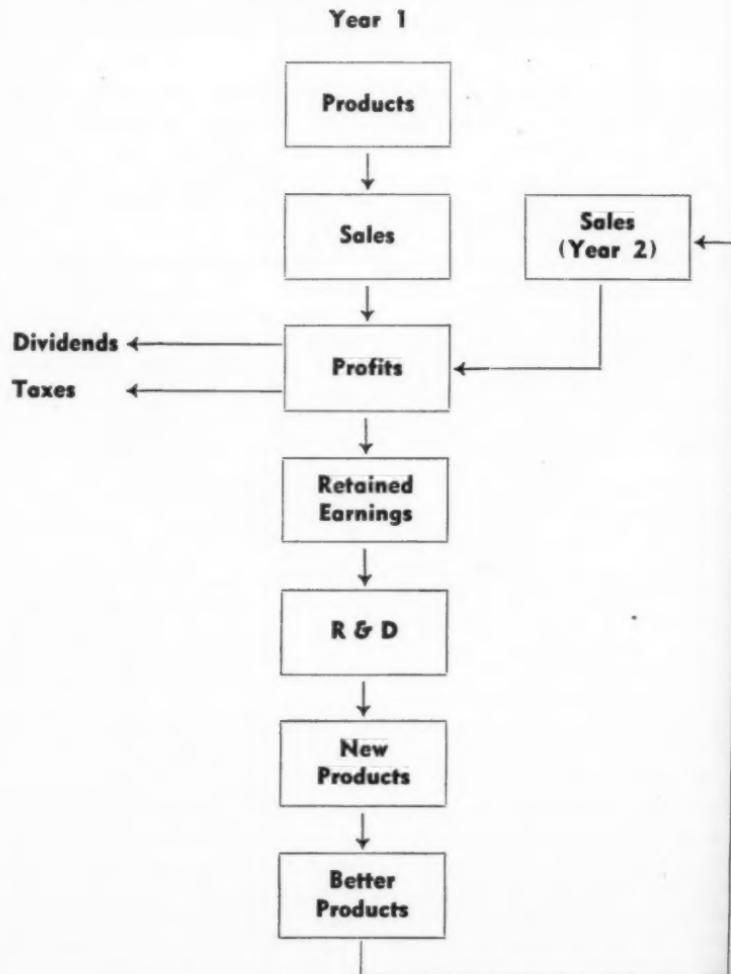
## Methods of Accomplishing Growth

The various measures of corporation growth may be viewed as derivatives of one basic measure—sales. A company can increase its sales either through expanding its existing lines of activity or diversifying into new lines of activity.

The expansion of existing lines of activity may take the form of increased marketing efforts to develop new markets and additional customers. It may also result from a broadening or improvement of the product line through research and development work in existing product areas.

The diversification into new lines of activity may result from such varied motives as the desire to utilize new inventions and processes, the need to compensate for declining markets for current products, and the desirability of insulating the

Figure 1  
**THE GROWTH PROCESS—A SIMPLIFIED VERSION**



company from severe fluctuations in specific industries.

### The Growth Process

Corporation growth can be visualized as a continuing process. Sales of a given product generally lead to profits, a portion of which are retained for investment in corporate expansion. Retained earnings used for product development are expected to lead to newer, better products which may result in increases in future sales. In the case of a successful enterprise, this process continues over time, leading to progressively higher levels of sales. (See Figure 1).

### Means of Financing Growth

The financing of growth cannot always be accomplished from retained earnings. Depreciation allowances are another source of corporate financing. Other possibilities include sales of stock in the company, long-term debt financing such as bond issues, and short-term bank credit.

Most business firms find it necessary to utilize all of these means of financing expansion at one time or another. For U. S. corporations as a whole, retained earnings plus depreciation allowances constitute more than two-thirds of total corporate investment funds.

The various means by which a company can grow through expansions of its existing operations, through what may be called "internal" growth, have already been indicated. Another means of expansion is through "external" growth, that is the acquisition of established businesses through consolidation or merger.

By expanding externally, assets may be acquired which have demonstrated ability to earn, and which can profitably be utilized by the acquiring company. Such external growth has several advantages. External expansion may require little cash if it can be carried out through the exchange of stock. Internal financing to acquire similar assets may involve greater costs, take more time, and may contribute to over-expansion.

The principal problems of such consolidations or mergers are those associated with the problems of placing values on the assets of the firms. The major factors to be considered in such a process are (1) the economics of the industry, including future trends, (2) the managements of the companies, and (3) the earning power of the assets. This latter item is probably the most crucial in determining the feasibility of such a business combination.

# TECHNICAL WRITING



FOR

## MIDDLEBROWS

by John A. Miller

**M**ORE WRITING DEALS WITH TECHNICAL subjects today than ever before. Expenditures for activities in the fields of science and engineering in the United States have quadrupled in the past ten years. No longer is the interest in these activities confined to engineers and scientists. They are of interest to nearly everyone—company executives, purchasers of equipment, bankers, accountants, stockholders, and the man on the street. This was the case before Sputnik; now the interest is even greater. Readable presentation of tech-

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nical information has become a major factor in public relations throughout industry. The crux of the problem is to make technical information readable for middlebrows; the highbrows are getting along all right and the lowbrows are not much in-

terested. The solution of this problem is not always easy.

Some years ago I undertook to write a readily understandable description of the process of nuclear fission. After quite a struggle I produced a description that I thought was simple and readable. This I showed to a nuclear physicist for comment.

"Yes, it's simple and readable," he said, "but unfortunately it's not true."

By the time I had squared my story with the facts, it was neither so simple nor so readable.

This is a usual experience of people who do technical writing. The essence of their job is to convey specialized information in a form that can be assimilated by persons who are not specialists in the subject under discussion. These writers must have enough technical knowledge to understand what they are writing about and enough journalistic ability to make it readable and interesting. As journalistic ability is not common among scientists and engineers, and technical knowledge is not often a specialty of journalists, a go-between is needed. The so-called "technical writer" provides this linkage.

### Fewer Problems in Times Past

The art of technical writing is centuries old. Until comparatively recently, however, its exponents were mainly scientists and engineers writing for the edification of other scientists and engineers. They all understood each others language. Difficulties of terminology seldom arose between writer and reader. There was no need for technical writers.

Occasionally, of course, technical writing was done for the benefit of others than engineers and scientists. This was the case when Sextus Julius Frontinus wrote his famous report on the water supply of the city of Rome in AD 96. He was serving as Water Commissioner at that time, and his report was directed to the Emperor Nerva. Frontinus had the fairly simple problem of making what he wrote understandable and interesting to only one person. Whether or not anyone else read it was immaterial.

It still happens sometimes that technical writing is done primarily for the benefit of a single person—a company executive or an official of some sort. When this is the situation the problem is relatively simple. The writer simply puts himself in the place of the individual who is going to read

his words and figures out what information will be wanted, what is this individual's background of technical information, and how much he may be expected to know of the terminology of the field under discussion.

### Writing for a Mixed Audience

The problem of making technical information readable is seldom as simple as that. More often than not, the technical writer must address a mixed or vaguely defined audience. From the standpoint of technical knowledge they are middle-brows. You can't be entirely sure what they already know, what they want to know, or how much they understand of technical terminology.

But you have to assume some reasonable knowledge level on the part of your audience. You can't explain the principles of electromagnetic radiation every time you write about a development in the field of radio communication. On the other hand, you can't talk about "minority carrier lifetime" in connection with radiation effects and expect to carry with you any large part of a general audience.

During a round-table discussion at a recent Technical Writers Institute sponsored by Rensselaer Polytechnic Insti-

tute, the question came up as to the knowledge level that could safely be assumed for various audiences. The participants, who were all technical writers, agreed that the knowledge level for a general audience could be assumed to be that of a high school graduate, while a mixed technical audience could be assumed to have the level of a college sophomore in science or engineering.

At first thought these conclusions may appear to give scant credit to the reading abilities of either general or technical audiences. Yet there are good reasons for selecting these levels.

### Technicians Have Become Specialists

With the explosive expansion of technical knowledge in recent years, scientists and engineers have developed into specialists rather than general practitioners. Often they are not familiar with technologies in fields other than their own, nor with the terminologies involved. They may be high-brows in one or two areas; elsewhere they are middlebrows. The other day I asked three engineers separately what was meant by a particular technical phrase that bothered me. I received three different answers, each interpreting the phrase as it was used in the particular

field in which the engineer specialized.

To avoid confusion of this kind the technical writer can safely assume for a non-specialized engineering or scientific audience only such technical knowledge as is common to all fields. Since freshman year subjects are reasonably similar in most technical schools, the assumption that best fits the situation is that the reader has completed first-year study in science or engineering.

When the audience is the general public, or a mixed group like the stockholders of a company, their common knowledge must be assumed to be almost completely non-technical. Robert Gunning, author of "The Technique of Clear Writing," says tests show that the reading difficulty of popular magazines ranges from sixth grade for the "pulps" to twelfth grade for the "class" magazine. This is in close agreement with the conclusions of the discussion group at R.P.I.

All this adds up to the requirement that the technical writer must convey his message in clear simple language. Since he is a writer, it may be presumed that his knowledge of grammar and sentence structure is adequate. His problems lie in the fields of lucidity and vocabulary.

### **Use Common— Not Commonplace—Words**

While it is desirable for the technical writer to use common words that will be understood easily by his audience, he need not, in fact should not, use commonplace words. Precision is of first importance in technical writing. To use always the most commonplace word instead of the most precise word, produces pretty poor food for the reader—easily digestible, perhaps, but not very nourishing. Should we always say "dog" instead of "spaniel," "terrier" or "mastiff"? Certainly not. Shades of meaning are important. Precise words convey these shades of meaning. Technical writing should employ precise words so long as they do not lie outside the vocabulary range of the audience addressed. We should not water down our technical writing so that it comes to mean less and less to more and more people. To express the same thought another way, after we have picked the knowledge level of our audience, we should stick to it—not drop several levels lower to be on the safe side.

### **The Technical Writer— A Synthetic Product**

Technical writing is an acquired skill. Whatever may be said of other writers, technical

writers are made, not born. Not many scientists or engineers have a natural gift for writing. It just doesn't appeal to them. Not many professional writers have an extended technical background. Again, it just hasn't much appeal. The technical writer is a synthetic product, made by adding a second type of ability to one already existing.

The question is, what do you start from? Do you teach science and engineering to an experienced writer, or do you teach writing to a scientist or engineer? To this there is no hard and fast answer. Either process can develop a good technical writer. At the risk of inciting some vigorous dissent, I venture the opinion that it usually works better to teach writing to the technical man than to imbue the writer with technical knowledge.

One is reminded of the little boy whose teacher said he was slow in absorbing the meaning of what she was saying.

"I can understand anything you can explain," he replied.

That is a good thought for the technical writer to keep in mind. His audience can understand anything he can explain. Before he can explain, however, he, himself, must understand.

If he has a thorough under-

standing of his subject and an accurate mental picture of his audience, his explanation will be clear and concise. That is why it is usually best to take someone with a good, fundamental knowledge of technical matters and teach him to write clearly and understandably.

### **Sympathetic Accord Needed**

Another reason why this is best is that a technical man finds it easier than does a writer to establish a sympathetic accord with the scientists and engineers who provide the information. One sometimes hears the comment that technical men always want to have their work discussed in technical language; that they insist on long words and a ponderous style that discourages the average reader. Certainly this is not always true. I doubt that it is often true.

### **Little Interest Shown by Some**

Sometimes scientists and engineers have little interest in the dissemination of the information outside the ranks of their fellow workers in the same field of technology. Often they feel that it would be a burdensome task to translate the terminology of their specialty into words understandable at twelfth-grade level. Even more frequently they fear

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that an attempt to popularize their activities will result in the publication of what is nonsense from a technical standpoint. This fear is not entirely unreasonable. Unskilled interpretation of technical information has often resulted in the creation of false impressions of the nature and significance of scientific and engineering work. Glamorous but inaccurate dissertations on atomic power, for example, have led many people to look for the quick materialization of marvelous developments that will not come for years, if ever. But, when there is someone available who will undertake the burden of translating the technical material

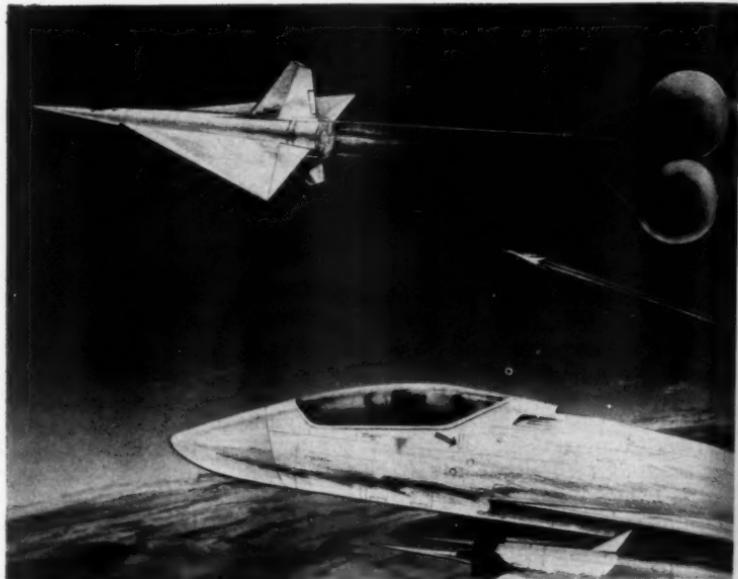
into everyday language, and who can be relied upon to do it with a high degree of professional integrity, scientists and engineers are glad to cooperate.

That is the reason for the existence of the technical writer—to bridge the gap between the technical man who has little inclination to write, and the public with its ever-increasing appetite for technical information. This is a grave responsibility. An informed public opinion is essential in a democracy. In this country public opinion means middlebrow opinion. To paraphrase Lincoln, "God must love the middlebrows—He made so many of them."

*Reprinted from the PUBLIC RELATIONS JOURNAL*



*"Wataya' mean, 'move on'? It so happens I work here!"*



*At supersonic speeds, where parachutes are likely to foul and tear, balloons have been found to be one of the best drag devices to slow down high-performance aircraft so they can make safe landings.*

## *New Look for* SPACE STATIONS

MAN'S FIRST INHABITED SPACE STATION may be packed in a small container as it leaves the earth, blown into shape like a balloon when it reaches orbit and "rigidized" by quick-setting plastic foam.

All this is possible through the use of expandable coated fabric structures, according to Goodyear Aircraft Corporation

engineers who developed the material for applications in space technology. The fabrics, either of organic or metallic

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***Building a manned orbiting space craft utilizing coated organic and metallic fabrics is not only feasible, but offers many advantages. Such a structure, of doughnut shape, is shown in final stage of building. Individual cells have been lifted into orbit in compact packages, inflated into shape by internal pressure and connected so personnel can walk freely from one cell to another. Last cell has been brought to orbit by cargo freighter and is being worked into position.***

fibers, will be able to withstand high temperatures, extreme cold and the hard vacuum of space.

Space stations envisioned by GAC engineers will be enormous earth-circling expandable structures situated hundreds of miles above the earth, where men will be able to work with scientific instruments and live in comfort.

Similar expandable shelters may also be the first inhabited

dwellings on the moon, and possibly on other planets, it is foreseen by S. J. Pipitone, manager of the company's Aeromechanics Technology Division.

Pre-fabricated sections of the space facility will be folded into compact packages, boosted into orbit by ferry rockets, expanded by internal pressure and joined to other sections to erect the complete station.

Although air or gas pressure will provide structural stiffness,

Pipitone explained, the facility can be made more rigid by shooting foamed-in-place plastic in areas between outer and inner walls, giving added permanence. The end result is a building form weighing much less than conventional structures, but with adequate load-carrying capacity.

Researchers from both Goodyear Aircraft and the parent Goodyear Tire & Rubber Company have been working for more than 50 years on fabrics and coatings for a wide variety of low and high-altitude flight conditions. Current work is being done under the auspices of the military services and other government agencies, in addition to company-supported research programs.

Among orbital applications envisioned, Pipitone said, are communications satellites, 300 to 400 feet in diameter, formed or shaped by internal pressure or foamed-in-place plastic techniques.

These devices would be launched in a folded condition and inflated at the proper time, constituting the ultimate in simplicity of erection. Such a facility would provide an object from which to "bounce" radio or radar signals, as has been done with the Moon and Venus, or for use as a relay station, Pipitone stated.

Several small space cells, inflated and made rigid with plastic, can be connected, directly or by fabric tunnels, to form a station, possibly doughnut-shaped.

Initial erection of a permanent space station can be accomplished inside temporary balloon-like fabric structures until enough of the station is completed for personnel to move inside under pressurized, comfortable conditions, Pipitone explained.

"The use of fabrics also can virtually eliminate the continual wearing of cumbersome space suits while working outside a pressurized station," he said. "Expandable fabric 'bubbles,' or work cells, can be fastened to the outside of the station and entered by means of an airlock, making routine maintenance possible under virtually the same conditions as inside the station.

"Self-contained heat and power will be provided by huge expandable solar heat collectors of coated fabrics. These collectors will support a thin metallic film to collect and concentrate the thermal energy of the sun for the operation of a power plant within the space platform.

"Getting man back to earth from orbital flight without burning him and his space ve

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hicle to a cinder may be solved by other fabric applications—one for the vehicle itself, the other for inflated drag balloons to slow down the re-entry vehicle at very high altitude so the rates of compression and heating could be endured," Pipitone pointed out. "Tests have proved balloons to be excellent stabilizers at super-sonic speeds at all atmospheric altitudes."

Goodyear research engineers have been exploiting the use of fabrics for many years. The company installed rubberized fabric on aircraft as early as 1910 and for nearly 50 years has been producing rigid and non-rigid airships, as well as balloons for military and commercial use. Goodyear Aircraft also developed an all-fabric Inflatoplane, now being evaluated by the Army and Navy.



"Haven't you ever heard of the telephone?"

## Book Purchase Service

For this month, we have selected two books that our readers should find quite valuable and will want to add to their personal management library. One deals with a very practical and universal management problem—how to delegate. The other is a very fresh slant on the whole business of selecting, educating, and training managers.

Under our special book purchase plan, NMA members may obtain each selection at a savings of 20%. Place your order by filling in the coupon on page 53 and sending to NMA.

Both selections are reviewed below by Norman George, NMA Manager of Research and Development.

# Manager Selection, Education and Training

by Willard E. Bennett

CHANCES ARE A MUCH MORE PROVOCATIVE TITLE could have been chosen for this book. But—this book is about manager selection, education and training. And it is not just another book on management development. It is a very fresh and different view of this vital topic.

Willard Bennett, responsible for training and labor relations with the Cities Service Refining Corporation, observes that,

although many books have been written about various aspects of management development, there is a crying need for a

"general theory of management development" to serve as a sound basis for policy and planning. This is an attempt to develop such a theory and illustrate how it would be applied. The author clearly sets forth his objectives at the outset:

1. *To analyze factors necessary for a proper development climate;*
2. *To postulate a general theory of manager selection, education and training;*
3. *To spell out a prototype developmental plan;*
4. *To consider in some detail the administration and execution of developmental plans;*
5. *To consider the application of some of the more important techniques recommended in the plan; and*
6. *To put the developmental process in clear perspective.*

Of course, many of the ideas included in the book have been treated before, often in much greater detail. But Bennett's purpose is not to provide a handbook of methods and procedures. Rather, he develops a complete plan for the company program based upon some carefully thought out premises.

His basic postulates lead him to answer such questions as:

Where should final respon-

sibility for selection and promotion be placed?

What should be taught and by whom in education and training programs?

How should outside educational facilities be utilized?

What appraisal techniques should be used?

Professional trainers, naturally, will find such a book quite valuable. But this is not a book only for training personnel. As Bennett clearly emphasizes, manager development is an extremely important function for all executives, especially those in high policy making positions. Perhaps the most important contribution of this book is that it provides a complete plan, and the premises upon which the plan is based, which the reader can use to compare with his own company's philosophy of management development.

The reader almost cannot avoid, as he proceeds from chapter to chapter, comparing his company's plans and philosophy for developing managers with Bennett's. This can be very healthy for it may uncover many glaring omissions that are the result of never having considered some important factors in planning and executing the management development program.

# The Techniques of Delegating

by Donald A. Laird and Eleanor C. Laird

LIKE THE WEATHER, there are many things in management about which we talk a lot but don't seem to do much. One of these is the process of delegating. Now, it doesn't take much to convince a manager that if he can master the art of delegating he can reduce his workload considerably and increase the efficiency of his operation. Donald K. David, former Dean of the Harvard Graduate School of Business, has said that the art of delegating and controlling is largely the essence of management efficiency. If management is the art of getting things done through people, then the process of delegating is almost synonymous with managing.

But how do you delegate effectively? Aren't most of us somewhat uneasy in this delegating business? Surely, some help in this problem would be most welcome. And this is what Donald and Eleanor Laird, two prominent business psychologists, offer in *The Techniques of Delegating*.

To our knowledge, this is the first and only book devoted exclusively to the delegating process. All important aspects of delegation are covered in the book. The chapter headings, in fact, seem almost in response to

questions managers raise consistently. For example, "Finding where delegating is needed," "Getting ready to delegate," "When to delegate," "Eight guides for planning," "What to delegate to simplify an executive job," "What not to delegate."

In non-technical terms, the authors draw upon psychological and sociological factors that explain much of our difficulty in effectively delegating. Wherever research pertinent to the problem has been done, the results and implications are brought out. However, this is not a technical book in any manner. It is a highly practical one written in language meaningful to the manager. The guides and principles for effective delegation are embellished with many pertinent and interesting examples.

This is not a long book, but it is full of ideas and thoughts that enable one to see the delegating process more clearly.

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## Enjoy Your "Income Time"

by  
Joseph R. O'Neil

MANY PEOPLE TODAY don't enjoy their position for which they receive their "income." Instead of enjoying their "income time," they feel that they must obtain enjoyment by "relaxing," "taking vacations," or "playing golf."

The difference between work and play is mental. Think about it! Haven't you had days when you were on the golf course and couldn't wait till you got in the club house and played

the 19th hole? On the other side of the coin, haven't there been days at work when you had a wonderful day because you felt that you had accom-

plished something? The first step toward enjoying your "income time" is when you arise in the morning. First thing to do is to wake up slowly. Don't jump out of bed, because the nerves in your body follow its movement—you jangle them and they will jump. Also, wake up with a pleasant thought of the coming day. As your clock radio turns on and you listen to the news, listen to the positive side. When the weather forecast indicates rain today, think of that dry garden in the back yard. If you hear about two out of five people being killed in a car accident on the highway, be happy that all five weren't killed—better yet, be happy that you weren't in it. Remember that there is a positive side to everything.

Next comes breakfast. Rule No. 1—Avoid the routine! I traveled with the same salesman for one week and noted that he had the same breakfast every morning. How many of you do the same thing? Probably over 35 per cent. Furthermore, think how bad the eggs and chickens feel knowing you're going to have two three minute soft boiled eggs every day of your life. This is the worst way to start your day. You're not living, you're existing!

Next in your day, you kiss

your wife and child and drive to work. This is the only "routine" you should continue. But, even this should be "different"—it shouldn't be like a military salute—show a little warmth and she'll have a better day.

A "trip" or a "ride" to work, which do you take? Some people who "ride" are moved from home to the office thinking only of the "horror" of the approaching day. Those who "take a trip" see the changing scenery, the nice looking blonde up the street who just moved in, and approach the day with a fresh mind ready to meet coming problems.

Now you have arrived—the start of your "income time." You are at your desk and what happens? The phone rings! If you are like millions of "people" in the United States, you will probably say "hello"—95% of the people say "hello." Did you ever hear a lousier, less descriptive, over-used expression than this one? What does it do to the person calling you from the other end? Absolutely nothing! In fact, it annoys them. You can bet with assurance that 95% of the time *you* are going to hear hello—so why say it! This again is a routine. Avoid it! Say something original on your own. If you must be conventional in the morning—try "good morning" in the morning

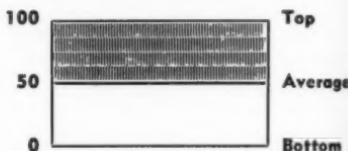
and "good afternoon" in the afternoon. Every so often try a shocker, "Buffalo Zoo," "Kelly's Pool Hall"—avoid that stereotype "hello."

Next is the correspondence that is constantly coming in. You probably have a letter regarding the operation of a machine in another department or even another plant over which you have absolutely no control. If you are the "drudge," you will sit and worry about it. Forget it if you can't do anything about it. Don't spend pleasant "income time" fussing about it. I can remember the plant manager of a large automotive plant in the East telling me, "I don't have enough time to worry about the problems in other plants. I have enough problems operating this plant to keep myself fully occupied." His responsibility at that time was to run only one plant. Now, by concentrating on his assignment as it was then, he has become the general manager of his Division, and is responsible for the operation of all the plants in his Division.

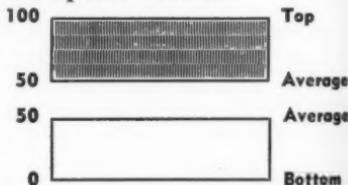
All the articles you read today concerning success, how to operate, how to enjoy your job, are written for salesmen by salesmen, for doctors by doctors. No one seems to care for the engineer, the office workers, who make up the vast number

of white collar workers in the world today. After all, we're entitled to enjoy our work as much as anyone else, and we can if we try.

During the day, you think—what kind of a job am I doing, how do I evaluate myself? If someone asks you how efficient you are during your "income time" and you are the so-called "normal" worker, you would probably answer "average." Analyze yourself. What does it mean? If you draw a bar chart, and say it represents 100 people, it means you are half way between the top and bottom. If you look at the chart, it will look like this:



Now let us take this chart and split it in two:



Take a look at the upper chart. You are the *average* worker. If you look at this chart, it shows that you are the lousiest of the best. If you look

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at the chart on the bottom, you find that you are the best of the lousiest. This is a poor situation. You can't afford to think you are average, or eventually you will be below and out when promotions are going to be considered. Set your goals higher than average. Now that you act, feel, and actually are above average, you can set your goal in this pleasant period of income time to accomplish something for yourself and your employer. Set your goal two ways:

1. *Immediate*
2. *Long-range*

Spend your time thinking about the immediate or you will never realize in the long range. If you are an engineer, office worker, chemist, plumber, anybody—concentrate on becoming the supervisor. If you day dream about being the president, you won't do your present job well at all. Another great problem with all of us, especially engineers and technical people, is that we tend to contribute nothing if we are really honest about situations. We just don't question things enough. The "average man" (although by now he doesn't exist in your mind) learns 95% from what he hears, sees, or reads. If he asked you how many feet there are in a mile, you would probably say 5,280.

How do you know? Did you ever measure it? No! You learned this by having someone else tell you this was true. How did you learn to talk? You probably learned by listening to other people. If you had heard whistling as a method of communication by the humans, we would probably all be for the birds. By questioning things, you should develop some fresh thoughts or inventions for others to hear or read. It's a shame how many people are "transported," not "traveled" through life without contributing to one tangible thing. I personally have had one experience in our plant involving polymerization process and I was told that this particular class of product had to be handled in a process involving large, special equipment. By questioning carefully, I found out that there was really *no one* who knew why it couldn't be done in another, obvious, cheaper way. By studying the heat transfer aspects (determining that 95% of the heat was conductive) thousands of

*The author is manager of the Development Department, Technical Branch, Coated Abrasives Division of The Carborundum Co.*

dollars were saved and capacity increased.

I have talked about the positive side of thinking. However, one thing that motivates people is what I call negative motivation. This works if you know the type of people you are dealing with very well. This is a technique where you say it couldn't be done, knowing full well that the other person will go to all limits to prove that you are personally wrong. I have used this and have found that with certain individuals it works very well. Automobiles were usually assembled in what was called the stationary set-up bucks. In this technique, the side panels, roof, etc., were welded together in a static position. It was said that it wasn't possible to do this operation on the conveyor line where most of the other operations in the body shops were done. By questioning automotive engineers and a statement by the old-time

body builders that it couldn't be done, these young engineers were motivated to design the "gate line" of today. Had these young engineers not perused this matter, production and cost would certainly have been different. Have courage, challenge thoughts and ideas—timidity is for the birds. So, at the end of the day think these things over:

1. Think positively
2. Avoid routine
3. Be aware—you're alive
4. Don't worry about things you can't do anything about
5. Evaluate yourself
6. Set reasonable goals
7. Question things

Now you can go home, and as you "travel" think about the pleasant ones waiting for you at the other end; and when you arrive, don't mix that same Martini—try a Manhattan for a change—maybe even with an olive!

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## *Next Month...*

***Sixty-eight pages of information prepared especially for members of supervision who have their sights set on improving their management education. You'll find it in . . . Manage.***

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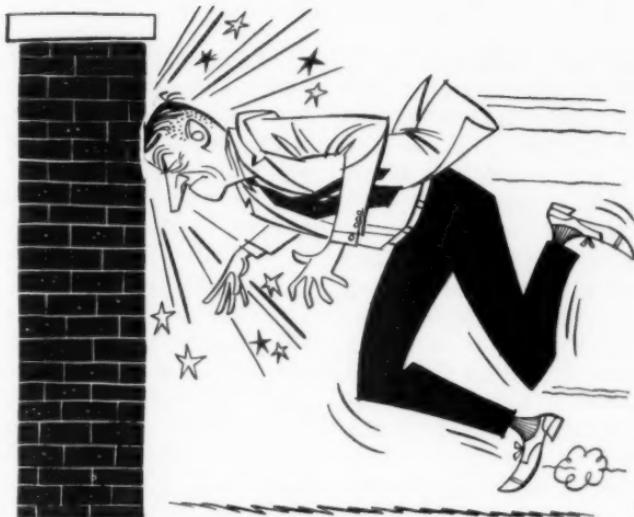
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## THE SUPERVISOR . . . .

### **His Own Worst Enemy?**

by H. A. C. Tracey

*General Secretary, Institute of Industrial Supervisors  
Birmingham, England*

**I**N THE AUTUMN of 1958, I had the very interesting experience of sitting in at a discussion meeting with a number of American foremen in the University of Southern California in Los Angeles. They were discussing supervisory problems, and after about an hour I was asked to comment. The only appropriate comment I could make was, "Why have I travelled 5,000 miles to hear this? I could have heard it in London, Birmingham or Glasgow."

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I do not propose to detail the American foreman's grumbles, since the comment I made will make it obvious that they are brothers under the skin with their British counterparts. I

think perhaps, however, it is useful to consider some of the more prominent current grumblies and to see how far the supervisor is the source of his own troubles—how far he is, in fact, his own worst enemy.

In almost every industry and in every part of the United Kingdom, I have heard foremen complain about their authority being undermined by this, that and the other functional specialist, with particular opprobrium usually heaped on the Personnel Manager as the villain of the piece. It is undeniably true that the foreman's authority has undergone many changes as a result of the advent of the functional specialist, but all too frequently, for example, the foreman puts himself in a position where senior members of management find it difficult to support his disciplinary action because it is hasty and ill-conceived, and there is little justification in these circumstances for complaining that authority has been undermined.

I feel too that many foremen are far too ready to refer even the smallest difficulty to the Personnel Manager; to send operators to the Time Study man if it is a question of bonus; all too ready, in fact, to hand over their authority to the nearest

specialist at hand. It is well worth considering whether the foreman has not done more harm to his authority by such actions than the specialists could have achieved if they had sat up all night plotting how to do it.

It is astonishing, too, how often foremen complain that they are unable to get their ideas across, with the implication, and sometimes more than the implication, that the man immediately above them is a clot who cannot understand how good and effective the supervisor's ideas really are. Undeniably, there are a few people senior to foremen who are clots, but probably the greatest weakness of foremen as a race lies in their inability to effectively express their ideas either by word of mouth or in writing. Here is a field where any foreman worth his salt should be seeking to improve his clarity of thought and clarity of expression, as a matter of enlightened self-interest, even if his sole objective is to be able to hold his own with the shop steward!

The shop steward, of course, is a bone of contention on both sides of the Atlantic, and whilst the situation in some companies is quite indefensible; whilst there is very little hope for a

foreman whose senior management continually encourage shop stewards to bypass the foremen, there is still a great need for the foreman to make himself aware of the agreements which cover his particular industry. He must know precisely the details of the shop steward's rights and privileges, and be sure that he is always in possession of the full and true facts of a case before involving himself in arguments. Only then can he maintain his authority and secure a smooth working relationship with workpeoples representatives. Foremen who can achieve this get good shop stewards, and as most foremen admit, "a good shop steward is worth his weight in gold."

Of course, to be in possession of the full true facts, one must have information and, undoubtedly, foremen do not always have the information they need, nor do they get it quickly enough, but I was interested to discover when I cross-examined American foremen on this particular subject, that they agreed—in the same way as British foremen—that the man who had not got the information had probably made very little attempt to obtain it. I was at a recent meeting where several foremen were com-

plaining of lack of information and others in the group—from the same company—were able to supply the information said to be lacking. You may draw your own conclusions!

Information is a basic ingredient of knowledge, and there can be little doubt that as far as the trade skills or job knowledge is concerned, most foremen can more than hold their own. It is in the field of management techniques, new ideas and new technologies, that they complain that they are handicapped in competition with the graduate and "the bright young man" coming into industry. This has bred a defeatist attitude and there is a considerable tendency for some foremen to sit on their beam-ends and ask in dissatisfied tones, "When is the Company going to do something to train me in these things?" Competition with graduates is here to stay and although there are many graduates who have an exaggerated sense of their value to the company, it cannot be denied that the graduate, who is prepared to obtain experience by involving himself in the work of the company sincerely and whole-heartedly, becomes a greater asset to the company than the foreman who, however many years of experience

he has had, refuses to move with the times.

Experience! This is something which many foremen are proud of having and justifiably so if it is continuous and developing experience which is applied wisely and actively to the job. All of us, however, know the foreman who is proud of his 25 years experience which on close examination proves to be one-year's experience repeated 25 times and a denial of the old tag, "experience teaches."

After this onslaught it surely would not be surprising if I were to find foremen picketing Institute Headquarters and carrying placards saying "Tracey Unfair to Foremen," but as my job depends on the goodwill of some 5,000 members scattered throughout the United Kingdom, it is hardly likely that I would emphasize these points unless I felt they badly needed emphasis. Without, I trust, appearing to be trying to soften the blow, let me make it clear that there are many foremen who are aware of their individual responsibility in these matters; who are making a determined effort to keep themselves up-to-date and who do behave as though they were truly an important part

of the management team. It is equally encouraging that many companies recognize the difficulties and provide supervisors with opportunities to help themselves and to grow both in knowledge and in status.

Having begun by a reference to America, may I close with a comment which I heard in the States, and which, I confess, caused me to hang my head in shame. A group of American foremen were asked the following questions:

*How much did you spend last year on cigarettes?*

*How much did you spend on liquor?*

*How much did you spend on entertainment?*

*How much did you spend on television?*

*How much did you spend on your car?*

It was clear from the expressions on their faces that they were finding that these sums amounted to a fairly considerable total and they were as shaken as I was by the "sting in the tail" provided by the two final questions:

*How much did you spend on educating yourself?*

*How much did you spend on improving your ability to do your job?*

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# ACT ON FACT

by James Black

“Boss, I can’t lift anything. It’s my back.”

That’s a reply nearly every supervisor has already heard or can expect to hear.

What to do about it? The supervisor remembers that some months ago the employee was hurt on the job. Company doctors have examined him repeatedly and can’t find anything wrong. The employee has been given work clearance. Still, any time he is given an assignment he doesn’t like, that “old back magic” comes to the rescue. He refuses, claiming physical disability. If the superior uses discipline, the union acts on the employee’s complaint of unfair treatment. There quickly follows the time-consuming process of the grievance procedure.

In this kind of case the facts are almost impossible to prove. Generally, the employee can come up with medical opinion to support his claim. The arbi-

trator himself may be confused by the clash of expert evidence. The easy way out is to avoid the issue. The supervisor realizes if he takes such a course he may have a permanent malingerer on his hands who will injure the group’s morale.

## The Pain in the Neck

John Walter (name fictitious), a supervisor in a smelting company, was confronted with this situation. One morning he directed an employee (we’ll call him John Duffy) to leave his work as a trackmobile operator and take over on a bagging machine.

“I can’t operate a bagging machine,” said Duffy. “You remember a year ago when I was transferring 100-pound sacks of potash—well, one of the sacks broke and spilled its contents so quickly that the rapid loss of weight caused me to hurt my neck. It’s still painful. So is my left arm.”

A SUPERVISOR’S GUIDE TO INTELLIGENT LABOR RELATIONS

"You've used that excuse for the last time. My order is reasonable. Your classification calls for you to operate a slusher, a trackmobile, a loader, or a bagging machine. You have been given medical clearance. The last time you said you couldn't work a bagging machine we let you get away with it. But no more! The work isn't heavy, and no employee under me is going to select his job."

#### **The Arguments before the Arbitrator**

Duffy refused to obey the order. Supervisor Walter discussed the problem with his superiors, and Duffy was terminated. Next came the grievance. Eventually the argument was heard by an arbitrator.

Said the union, "*The order was unreasonable.* The condition of the employee's health prevented him from obeying it. He tried to explain his problem, but with no success. The employee has visited medical clinics to try to cure his condition. His doctors are of the opinion that he could not carry out the order without injury to his health."

Replied the company, "*The order was reasonable.* The grievant should have performed the work. The labor agreement provides that any employee who does not obey a

reasonable order is subject to reprimand, discipline or discharge. The last time the grievant tried this trick he wasn't punished, but we discussed the matter with his union. Duffy has been given medical clearance and signed a release with our Medical Department which states there is no work he is incapable of performing. For these reasons the termination should stand."

#### **The Arbitrator's Reasoning**

The arbitrator ruled, "*The grievant has testified that a previous injury sustained in the performance of his job still troubled him. A company doctor has testified that he treated Duffy for this injury and that after the treatment he had received from the employee a signed medical release, which placed no restrictions on the work Duffy could perform. The grievant admits signing the release, but he says his neck and arm still hurt.*

"The company doctor has further testified that at a later time he had the employee (on his complaint) examined by two doctors in another community. One was unable to find anything wrong. The other reported that the patient seemed to be suffering from an anxiety neurosis, but that he could discover no physical disabilities.

"The grievant says he visited a clinic in another city, where he was examined by physicians. The union has submitted the reports of these physicians as evidence. However, none of these doctors has appeared at this hearing to support their evidence, or to submit to cross examination. Therefore the evidence is hearsay.

"According to the reports the grievant has presented in his own behalf, some of the doctors who examined him state he has a partial disability, and others simply say he should be restricted as to the amount of weight he can lift. This shows a conflict of opinion. Also, the testimony indicates that the grievant's statements were obtained from doctors and clinics who specialize in representing claimants who have allegedly suffered job injuries.

"I have observed the operation of a bagging machine. The operator is required to lift nothing heavier than a paper bag, which is automatically filled by the machine after being put in place. The operator is required to use only such physical effort as is necessary to nudge the bag slightly after it has been filled. It is then removed by a power conveyor.

"I am not a medical expert, but from my observation of the grievant it is my opinion that

his problems, if any, are more psychological than physiological. I am convinced from the evidence that he refused to carry out a reasonable order. There is no doubt in my mind that anyone employed by the company could, with minimum instruction, learn to operate a bagging machine. The grievant refused to perform the task, and testifies that even if reinstated, unless his health improves he will continue to do so.

"I find the order was reasonable—that Duffy had no basis for refusing to obey it. Therefore, this is my decision:

"There shall be no back pay or accrual of seniority or any other contract rights or benefits for any period from the grievant's termination until his return to work.

"Because there is some conflict in the medical testimony, I believe that the terms of the contract relating to this subject should apply.

"I rule that the company shall offer reinstatement to the employee. If and when he returns to work he shall perform all the work of a loading dock operator as assigned, including the work of a bagging operator.

"Moreover, the grievant must be physically and mentally qualified to do his work. If there is doubt, it shall be resolved by physicians according

to the terms of the agreement. If they decide that he is unable to do his job, he shall be granted a 'disability leave' by the company as provided under the terms of the agreement. The rights of the grievant to be reinstated under the above conditions shall be exercised within 45 days."

### A Difficult Problem

In this case the arbitrator was tossed a "hot potato." Obviously he considered that the employee had used the excuse of ill health to dodge work. Still, he was no medical expert, and the grievant had secured statements from physicians that partially supported his claim.

Although the arbitrator discounted this evidence as hearsay, he concluded that on any matter of health the employee should be given the benefit of the doubt. Therefore he struck out the claim for back pay, but ordered the company to "offer" reinstatement under certain conditions. They were: the employee must be capable both mentally and physically of doing his full job as a dock operator or else accept a "disability leave of absence."

In the union contract there were provisions regulating such matters. Qualified doctors

would conduct the examination to determine the state of the employee's health, and if they decided the grievant was either physically or psychologically unfit for his job, he could then apply for a "disability leave." If not, he would have to work or quit.

The chances are the supervisor knew, just as the arbitrator had observed, that the employee's problems were basically psychological. Also, he may have banked on Duffy's signed release, which stated he was capable of performing any duty, and reasoned, "This fellow is a malingerer."

Morally, he was absolutely right. But one of the most difficult problems a supervisor faces in employee relations is what to do about the man who claims he has an unidentifiable disability. It may be imaginary, but you can't take chances. Neither can you afford to have a fellow around the shop who refuses to pull his weight if he is capable.

Therefore, if you are faced with a case of this kind, act cautiously. Check with your doctors and your personnel department before you move. Impulsive action can lead to a labor relations headache.

*This case was described in the Labor Relations Reporter. It has been revised slightly to illustrate certain principles of supervision.*

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## Code of Ethics

I resolve to recognize that every man above, beside or below, has an inherent desire to do good work and to be a useful and respected citizen. Until I have considered every possible motive, I will not assume that any man wants to do anything less than his best.

I resolve to keep an open mind on all subjects, and strive to maintain a broad and balanced outlook. I will always be willing to recognize merit in another's ideas.

I resolve to deal fairly with all my associates in the company. I will assume responsibility for my own mistakes and refrain from shifting blame to others.

I resolve to strive to understand the principles of business which make for the success or failure of industry. I will pass on to my men all the fundamentals of business principles so they can see, for themselves, their own relation to the general scheme.

I resolve to keep informed as to the latest development in equipment and processes. I will recommend or put into effect such methods as will produce improved quality and lower costs for products, and improve working conditions.

I resolve to realize that one phase of my profession is to help working people obtain maximum satisfaction from life.

I resolve to earn, and carefully guard, a reputation for good moral character, good citizenship and common honesty; and I will support and promote all the uplifting influences of my community.

PHILOSOPHY  
OF LIFE

PROFESSIONAL  
SUPERVISION



# Manage

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THE NATIONAL  
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Club Anniversaries	2	
Washington Report	4	Michael S. Roberts
Robot Executives	8	Louis E. Wolfson
No Salesman?	17	Eleanor M. Marshall
Humanity and Space	20	Charles W. Bellamy
Management Tries its Wings	25	Mark Metcalf
Jet Age Problems in Concrete, Too!	31	Dick Ashbaugh
Measuring Corporation Growth	36	Murray L. Weidenbaum
Technical Writing for Middlebrows	40	John A. Miller
New Look for Space Stations	46	
Book Purchase Service	50	
Enjoy Your "Income Time"	54	Joseph R. O'Neil
The Supervisor—His Own Worst Enemy?	59	H. A. C. Tracey
Act On Fact	63	James Black

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